

TRANSACTIONS  
OF THE  
LINNEAN SOCIETY.

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I. *Descriptions of several new or rare Animals, principally marine, discovered on the South Coast of Devonshire. By George Montagu, Esq. F.L.S.*

*Read April 7, 1807.*

CANCER.

CANCER HIPPA SEPTEMDENTATUS.

Tab. I. Fig. 1.

**T**HORAX suborbicular, smooth, with a slightly embossed urn-shaped impression: front obtuse, tridentate, the sides serrated with seven denticulations each, besides those which guard the eyes: antennæ two, hirsute, not so long as the thorax: arms very broad, and somewhat compressed, ciliated with long hair of a yellowish cast: the fixed claw turns outwards: the thumb is hooked, and stands much oblique when closed: these are of a dusky colour, and bluntly toothed: the two extreme joints of the arms are minutely verrucose, the roughened parts somewhat disposed in rows, particularly on the hand, where seven distinct lines are observable; on the top of the wrist a small blunt spur: legs eight, subulate, the hindmost pair a little compressed, all

more or less margined with long hair: tail small, nearly cylindrical, the extreme joint acutely pointed. Diameter above one inch and a quarter.

Several of these crabs were taken in deep water by the trawl, all of which are evidently males; they were when fresh, though not alive, of a pale colour clouded with light ferruginous.

It is probably an inhabitant only of the deep, and difficult to be obtained, I having in no other instance been able to procure it.

I have not been able to fix any synonyms to this species; nothing in Gmelin in the division to which it belongs can be referred to.

CANCER BIACULEATUS.

TAB. I. Fig. 2.

Thorax ovate, gibbous, the front armed with two very long spines that form the proboscis; these are very close together, declining a little, and diverging at the points: over each eye is a short and broad spine, and two smaller immediately behind: on each side near the posterior end is a large spine pointing obliquely upwards: the elevations and depressions upon the top of the thorax are not easily defined, but along the middle is an undulated ridge running to an obtuse spine at the posterior end: antennæ shorter than the proboscis: arms slender, and not so long as the anterior legs, destitute of spines, but tuberos about the joints; the fangs small and denticulated: legs eight: claws subulate, slightly hooked, and furnished beneath with minute denticles: tail small, obtusely pointed.

The shell of this crab is livid white, but is mostly concealed by a thick covering of short curled hair of a yellowish brown colour, the tips of the claws excepted: when this is removed, the shell appears under a lens full of punctures. Length an inch and a quarter, breadth three quarters of an inch.

I have

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I have only been able to procure one specimen of this crab, which is a male, and was taken in the trawl at a considerable distance from the shore. It has much the habit of *C. tetraodon*, but is not so broad in proportion, is more gibbous, destitute of the lateral spines; and the lengthened one over the eyes, so conspicuous in that species, is in this very short.

CANCER GAMMARUS SPINOSUS.

TAB. II. Fig. 1.

Body rather ovate, not much compressed: the colour when alive is of a deep red-brown, and highly glossy: antennæ four, setaceous, superior pair longest, and about half the length of the body: joints of the body, including that to which the caudal bristles are fixed, eleven: arms (if so they can be termed, being shorter and smaller than the legs,) two pairs; these do not appear to be subcheliferous, but formed like the legs; and being destitute of the usual anterior legs, independent of those which are placed forward in the situation of arms, it might with propriety be described to be destitute of arms: posterior legs three pairs, which as well as the others are spinous: body smooth: the four posterior plates are subcarinated, and terminate behind in a spine. the sides of the same plates also shoot into a spine at the lower exterior angle: natatorial fins beneath the abdomen two pairs; and three pairs of subulate caudal fins, the posterior pair of which are bifid.

Length three quarters of an inch.

I am not enabled to fix any synonyms to this species, which is one of those that connect the *Cancer* and *Oniscus*. It appears to inhabit the open sea, and is frequently dragged on shore amongst marine plants and *Zoophyta* in the nets, especially at Torcross.

Doctor Turton describes a species of *Cancer gammarus* from the British Museum under the title of *carino-spinosus*, which in some respects accords with this; but as half a dozen words convey so little, and the size is omitted, I dare not refer to it.

It may be proper to remark, that in the figures given of this and the following *Cancris*, the legs only on one side are shown, to prevent confusion in these magnified species, except in figure 6.

CANCER GAMMARUS GALBA.

TAB. II. Fig. 2.

Body ovate, somewhat elongated at the tail, smooth, glossy, and when alive of an olive-green minutely speckled with brown, but by drying becomes rufous-brown: antennæ of the male remarkably short; in the female two pairs extremely long, and slender, nearly equal to the length of the body: joints of the body, independent of the head, and the joint to which the caudal fins are attached, eleven: the head is large, and much resembles that of a maggot, and in the male appears to have no division between the eyes, but a continuation of the same transparent membrane covers the whole: the eyes of the female are very large, but distinctly marked by a division: the two pairs of anterior legs, like those of *C. spinosus*, are small, and not subcheliferous, but occupy the place of arms, and scarcely differing in any respect from the other five pairs, all of which are furnished with a very small claw: abdominal fins three pairs; caudal fins five, flat, and bifid; the middle one very broad, concealing the others which are capable of spreading laterally.

Length half an inch or more.

The female is rather more slender in the body, and does not so suddenly decrease towards the tail: the eyes, as before mentioned, are distinct, and are of a bright red when alive, reticulated,  
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and marked with two streaks of black, one on each side the eye, probably the reflection of a pupil.

This is another species of *Cancer* that very nearly approaches the genus *Oniscus*, and is readily distinguished by the larva-like appearance of its head. It is not uncommonly taken with the last.

CANCER GAMMARUS MONOCULOIDES.

TAB. II. Fig. 3.

Body slender, compressed, with ten smooth joints of a pale colour, the seven first connected with a broad plate on each side of an oval shape, which appears capable of closing, and receiving all its external members, such as the legs, antennæ, and probably the caudal fins: no visible arms, but it has several pairs of legs armed with slightly hooked subulate claws: antennæ four, the upper pair rather the longest, and about half the length of the body: eyes very minute: caudal fins three pairs, subulate.

Length one eighth of an inch. Not common.

This species seems to connect the *Cancer* with the *Monoculus*, but is more allied to the former in the conformation of its members.

CANCER GAMMARUS OBTUSATUS.

TAB. II. Fig. 7.

Body slender, compressed, with eleven smooth joints, independent of the head, and of a pale brown colour, usually mottled with rufous-brown when alive, especially about the legs: antennæ four, the superior pair nearly as long as the body, the others somewhat shorter: eyes very small, and of a pale colour: arms four, the anterior pair very small; the others are furnished with large hands differing a little in different specimens; but the claw, which is a little hooked, is always obtuse at the end, and some-  
times

times clavate: this claw closes upon the edge of the hand, in some between a double row of teeth; in others destitute of teeth there is a single denticle that receives the end of the claw: legs ten, the two anterior pairs smaller than the others: caudal fins three pairs, the lower pair shortest, and all subulate: on the top of the exterior margin of the four posterior joints are two or three small spines.

Length three eighths of an inch. Taken in Salcomb bay, but not common.

CANCER GAMMARUS PEDATUS.

TAB. II. Fig. 6.

*Gammarus pedatus.* *Mull. Zool. Dan.* iii. t. 101.

Body linear, with seven divisions or joints including the head; the first two are furnished with a pair of arms each and subcheliferous hands, the claws being long, hooked, and folding upon the hands; the anterior pair is smallest; the posterior pair is armed with a small spine on the hinder part of the hand, that meets the claw when closed: the other five joints of the body are each furnished with a pair of legs; those on the two posterior joints are the longest, and the shortest pair is fixed to the fifth joint; all these are armed with subulate claws: at the base of the hindmost pair of arms, and the two pairs of foremost legs, are two small oblong scales or vesicles; antennæ four, the two superior half as long as the body; the inferior shorter by one half: at the mouth a minute pair of palpi; eyes sessile, reticulated, and of a crimson colour: the body and legs cinereous-green speckled with purplish red.

Length including antennæ less than one inch.

Found amongst *Confervæ* at the Salt Stone, very scarce.

Muller has given a tolerably good figure of this species; but  
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by some mistake the two first joints are undivided, so that the two pairs of arms appear to originate from the same articulation: there are also, in his, four minute appendiculæ at the extremity of the posterior end. This could not be discovered in my specimens, and is probably a sexual distinction.

The same author refers with doubt to *C. linearis* of Linnæus for his *pedatus*, but it really is quite impossible to decide a matter so much in obscurity\*. For the Linnean *C. atomos* Muller refers his *Squilla quadrilobata*, the *Cancer Phasma* of the sixth volume of the Linnean Transactions, and seems to conjecture, that, as well as *filiformis* and *linearis*, may be the same.

I do not know that this has been described by any author previous to Muller, and it is, I believe, hitherto unknown to be British. It differs from *C. Phasma* in several particulars, but essentially in possessing ten instead of six legs, the two middle joints of the body in that species being destitute of any.

This has also three pairs of abdominal vesicles, whereas the *C. Phasma* has but two pairs, and those differently shaped.

## PHALANGIUM.

### PHALANGIUM ACAROIDES?

#### TAB. II. Fig. 4.

*Phalangium acaroides*. *Gmel. Syst.* p. 2944.—*Turt. Lin.* iii. p. 717.

*Chelifer americanus?* *Degeer Ins.* vii. p. 353. t. 42. f. 1. 2.

Body oblong, truncated at the posterior end: thorax smooth, glossy, the other part divided into eight joints beset with hairs:

\* Dr. Shaw considers that this can be no other than the *Cancer linearis* of Linnæus, first described, perhaps, by Baster in the Philosophical Transactions, vol. 50, under the title of *Mirum animalculum inter Corallinas degens*, and figured, both in its natural size and magnified, in the same volume. The annexed figure is the most accurate of any yet given.

palpi

palpi short, chelate, and porrected; the thumb or moveable fang much hooked at the point: feelers, or more properly the arms, as long as the body, and cheliferous: the hand ovate: fangs slender, slightly hooked, and smooth, but furnished with hair: legs eight, each provided with a pair of minute claws; these are also hirsute: eyes two, placed on the sides of the head, and none on the top: the colour is chesnut.

Length one eighth of an inch.

Although it appears that this curious insect has been now and then met with in this country; yet as it is esteemed rare, and is so little known, some further accounts of it from personal observation may not be unacceptable to the curious entomologist; and an outline figured in the plate will at once convey some idea of its structure, and evince that it is perfectly distinct from either the *P. cancroides* or the Lobster insect figured in Adams on the Microscope by Kanmacher, plate 18.

The first I obtained was from Cornwall, taken on the rocks contiguous to the sea; but I have since found them to be very common in my own neighbourhood.

In an old slate quarry situated in a wood, and now overgrown with trees, where the rays of the sun can enter only for a short time in its diurnal course, I was greatly surprised to find several of these insects adhering to one of the flat stones: they were not exposed on the upper surface, but lying quiescent on the other side, with their arms drawn close to the body. This discovery induced me to search for more; and by turning up many of the loose stones, it was obvious that this hitherto esteemed rare insect was colonized here in considerable abundance. It was in the beginning of April when these were first noticed, and at that time they were scarcely larger than *P. cancroides*, and tender, as well as much paler in colour than the specimen from Cornwall. In the  
latter



latter end of May I again visited my colony, and found them equally plentiful and increased in size, but not one so large as the Cornish *P. acaroides*. Rather later in the year, perhaps about the middle of June, I found one in a different place, but under a slate, that was not much inferior in size to my former specimen; and circumstances prevented me from visiting my colony again till October, when with the utmost search not one was to be found. From these circumstances it may be concluded, that the life of this animal is extended to only six or eight months, or at least short of a year, for not one old or full grown one was to be found: it is therefore probable that the eggs are deposited early in the autumn, or latter end of the summer, and are brought to life by the first warm weather in the spring.

Like *Phalangium bimaculatum*\*, the *P. acaroides* delights in dry shady places amongst stones, especially slate. But aridity as well as much heat appears to destroy both these insects: even confinement in a bottle or box is usually fatal in a few hours. Thus the temperature of a slate exposed to the solar rays would instantly destroy them, from the great absorption of heat by so dark a body, although an ant finds no inconvenience from such accumulated heat.

I cannot conclude this subject without observing, that although it has been thought proper in this place to affix to the insect in question the titles by which it is generally known, yet it must be remarked that, according to the Linnean character of the genus *Phalangium*, the *acaroides* can have no claim to a place in that family: and certainly those who, like Fabricius, have considered it as a *Scorpio*, have not mended the matter, for in fact it wants all the essential characters of that genus: the eyes on the back,

\* Donovan British Ins. vol. v, tab. 156. 4. This is common in similar situations with *P. acaroides*.

the pectoral combs, and the articulated tail armed with a spine. De Geer has very properly instituted a new genus for it under the title of *Chelifer*, to which the *cancroides* and the other species figured by Kanmacher should be referred\*.

It will be observed that the *P. acaroides* differs from the last-mentioned species in being destitute of the cleft on the inside of the thick part of the claw, or rather the hand, which is so conspicuous in the species figured by Kanmacher, and which species at present seems to be the only one noticed in this country, although that author remarks that he received four from Holland very perfect.

The absurd idea, that either this or the *P. cancroides* gets into persons' legs and creates humours, is certainly without foundation, neither of them being furnished with a proboscis like the *Acarus*; and it is more than probable the habits of *Acarus autumnalis* have been ascribed to these insects. That little creature, almost invisible to the naked eye, abounds in dry summers so much as to be extremely distressing to those who enjoy rural sports; and where the habit is readily excited to inflammation, dreadfully inflamed legs will frequently be the consequence, of which I have known several instances. I have found this species of *Acarus* particularly attached to raspberry bushes, and in this situation it usually attacks the arms as well as the legs of those who are in the habit of picking the fruit.

The *P. cancroides* is more commonly found amongst collections

\* Dr. Shaw thinks, from the remarkably truncated form of the abdomen of this insect, that it constitutes a distinct species from the *P. acaroides*, and might not improperly be named *P. truncatum*. The insects of this tribe may be allowed to form a separate genus, nearly allied to that of *Scorpio*, under the title of *Chelifer*, the name applied to them by De Geer. The *P. cancroides* is certainly furnished with a pair of pectinated organs resembling those of Scorpions, though in a somewhat different situation, being placed nearer to the head.

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of natural subjects than elsewhere; it is not uncommon to see four or five together in one case of my preserved birds, and yet I have never observed it in any other part of my house. The progressive motion of this insect is very slow and uniform, contracting its arms and becoming motionless when touched. On the contrary the *P. acaroides*, though not very quick in its usual movements, will, if touched, run either backwards or forwards with great celerity, and will sometimes leap like *Aranea scenica*; possibly like that insect it springs upon its prey.

### NYCTERIBIA.

Without eyes, antennæ, or anterior mouth, but upon the top of the thorax a cylindric proboscis or sucker: legs six, each armed with two hooked claws.

#### NYCTERIBIA VESPERTILIONIS.

TAB. III. Fig. 5.

*Nycteribia Vespertilionis.* Latreille, *Gen. Crust. et Insect. tom. iv. p. 364. tab. 15. fig. 11.*

*Celeripes Vespertilionis.* *Trans. Linn. Soc. vol. ix. p. 166. note.*

This extraordinary animal, hitherto only observed to inhabit two species of bats, *Vespertilio Ferrum-equinum* and *minutus*, is properly divided into two parts, the thorax and abdomen, being destitute of head, as well as of eyes, and the other appendages usually attached to that part. It has only three pairs of long legs, which are affixed to the thorax, and are placed in a very unusual manner, originating from the upper part, leaving the visible part of the thorax very narrow above, but consequently much broader beneath, and when viewed in this last position it obscures the first joint of the legs; on this side there is a longitudinal suture.

The abdomen appears to have three divisions: the first joint or annulation is by far the largest on the upper part, but by its obliquity becomes narrow beneath: the margin or divisional line has a pectinated appearance under the microscope, similar to that observed in the common flea: the posterior joint is smallest, and is terminated with two long fleshy papillæ furnished with four bristles regularly radiating: upon the upper part of the thorax close to the anterior end is a cylindric erect appendage beset with bristles; this appears tubular, and seems to be the proboscis or trunk by which the animal takes its nourishment: should this be the case, and of which there seems no doubt, its manner of feeding must be curious, as it must turn on its back to apply this mouth to the skin of the bat. So strange and contradictory to experience is the formation of this insect, that, were it not for the structure of the legs, no one could doubt that the upper was actually the under part of the body, as well from the situation of the legs, as from that of the proboscis: the joints of the legs however demonstrate otherwise, and the living animal examined in motion puts it beyond all doubt: the legs have four joints, independent of the foot to which two remarkably hooked claws are fixed, and at their base a spongy substance: at the end of the tibia next to the tarsus are a few annulations, like imperfect joints.

Length one eighth of an inch; the legs not quite double that of the body.

In another specimen examined, the body or abdomen appeared to have four joints, was more ovate, tumid, and destitute of the posterior appendages; the thorax and all the other parts similar to the first. This I suspect to be the female; and the sexual distinction seems to be further exemplified by the posterior end of the former being bilobated vertically, and when examined  
sideways

sideways it was obvious the stellate appendages issued from the lower lobe.

The very singular structure of this insect, which at first appears to be a strange deformity of nature, and excites our astonishment, will, like all other creatures constructed by the same omnipotent hand, be found to be most admirably contrived for all the purposes of its creation; and the scrutinizing naturalist will soon discover this unusual conformation to be the character which at once stamps its habits and œconomy.

The motion of this insect is so extremely quick that it surpasses every species I have hitherto noticed: it transports itself with such celerity from one part of the animal it inhabits, to the opposite and most distant, although obstructed by the extreme thickness of the fur, that it is not readily taken. When it applies the proboscis to the skin of the bat, it reclines on its back, and by this means it holds most securely by its claws to the larger hairs.

When two or three were put into a small phial, their agility appeared inconceivably great; for, as their feet are incapable of fixing upon so smooth a body, their whole exertion was employed in laying hold of each other, and in this most curious struggle they appeared to be actually flying in circles; and when the bottle was reclined, they would frequently pass from one end to the other with astonishing velocity, accompanied by the same gyrations: if by accident they escaped each other, they very soon became motionless; and as quickly were the whole put into motion again by the least touch of the bottle, or the movement of an individual. In this situation they survived two or three days.

Besides this species I found on *Vespertilio Ferrum-equinum* an *Acarus* with a pale lead-coloured ovate body, and eight extremely long and slender legs, and the valves of the proboscis very conspicuous.

On *V. minutus* was another species of *Acarus*, with only six legs of moderate length, and a reddish ovate body. Whether these are new, and each peculiar to the respective bats from which they were taken, is not at present to be determined, and the remark is only intended for the future observation of others.

## MONOCULUS.

### MONOCULUS ROSTRATUS.

#### TAB. II. Fig. 5.

Body ovate, crustaceous, of a pale yellow colour, with a darker longitudinal line along each side: antennæ four, the superior pair bifid near the base, one branch moderately long, the other very short; the lower pair simple, and nearly as long as the body, the three first joints large; all these are hirsute, and incline downwards: eyes two, large, pedunculate, and reticulated, appearing in a strong light crimson; these are covered by a pointed beak or shield a little incurvated, convex above, and concave beneath: natatorial legs three pairs, these are slightly bifid and very hirsute; between these and the front are several fasciculi of bristles: tail longer than the body, consisting of five joints elevated at their junction, the middle one furnished with two small appendages beneath: to the end of the tail are attached two subulate caudal fins terminated by a long setaceous appendage, and covered with hair.

Length to the end of the tail three eighths of an inch.

When in motion, the fasciculi beneath, which appear to be abdominal fins, as well as the superior antennæ were observed to be in continual motion; the inferior antennæ were usually motionless, and brought under the body.

This marine *Monoculus* is I believe the largest species this  
county

county produces, and, as far as I have the means of ascertaining, has not been described; at least nothing sufficiently corresponding in character appears in Gmelin.

## ONISCUS.

### ONISCUS CÆRULEATUS\*.

#### TAB. IV. Fig. 2.

Body subcylindric, of a resplendent blue, and destitute of joints: the head is conic and pointed: the thorax, which appears to consist of two ventricose joints, is of a pale colour like that of the head: antennæ four, setaceous, the interior pair longest, with three visible joints each: eyes two, large, black and reticulated: legs ten, two pairs of which are affixed to the thorax, and the others to the abdomen: the tail is flat, with five strongly defined articulations, and furnished with five caudal fins, the middle one largest and conic, the lateral ones ovate, and furnished with long bristles; this part is nearly the colour of the head and thorax, pale brown. The under part of the body is equally convex and of the same colour as above, appearing under the microscope to be destitute of any division: this crustaceous covering is subpellucid, and in some lights is a little shaded by the intestines.

It swims with the head foremost, although its tail appears to be the chief instrument of progressive motion; for this purpose the tail, like that of a fish, is always extended, and the effect is produced by a vibratory action.

\* Dr. Shaw is of opinion that this insect might be permitted to constitute a distinct genus. At all events it appears sufficiently remote from that of *Oniscus*, and seems more nearly allied to some of the smaller divisions of the genus *Cancer*, though not properly belonging to any of them.

Length

Length one eighth of an inch. Rare.

Two of these insects were discovered adhering to the body of a Father-lasher, *Cottus scorpius*.

A species in every respect like this except in colour has once occurred, but whether distinct or only a sexual difference is not to be determined. In this the body was white; the head, thorax, and tail maculated with yellow.

## DORIS.

### DORIS PAPILLOSA.

TAB. IV. Fig. 3.

*Doris papillosa.* Gmel. *Syst.* p. 3104.—Turt. iv. p. 78.—Baster i. p. 81. t. 10. f. 1.

Body ovate-oblong, rounded in front, acuminate behind: on the fore part are two long slender tentacula somewhat compressed and pointed; these turn outwards, and being retractile, and similar in colour to the papillæ that are contiguous, are not easily discernible except when the animal is in motion: above these are two other annulated approximating tentacula which are erect, and capable of retracting within proper receptacles; these are dusky with white tips: a bare space in front extends in an angle behind the posterior tentacula: along the middle of the back smooth; the rest of the body above, covered with long papillous appendages, that are capable of changing their form from round to flattish, and are somewhat retractile; the ground colour of these is yellowish white; but when in their more usual order sloping backwards, some specimens appear brown by reason of being closely speckled with that colour: the bare space along the back is capable of contraction, and in that state

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is not readily discovered, but when dilated is very conspicuous, and a regular pulsation is discernible.

Length two or three inches. Not uncommon.

From the points of the papillæ an extremely viscid secretion is discharged, that sometimes envelops the whole animal.

Of the British species this comes next to *Doris argo* in size, and is not less known on the south coast of Devon.

#### DORIS QUADRICORNIS.

TAB. IV. Fig. 4.

Body ovate, mottled brown and white; along each side an obsolete row of tubercles, somewhat dilatable, extending from the tentacula to the vent: tentacula four, long, both pairs originating from the upper part, and approximating; the anterior shortest setiform, inclining forwards; the others filiform, reflecting backwards, the same colour as the body: vent situated near the extremity of the back, surrounded with eight or nine branched appendages.

Length three eighths of an inch. Rare.

#### DORIS PENNIGERA.

TAB. IV. Fig. 5.

Body oblong, acuminate almost to a point at the posterior extremity, covered with small spots of bright orange and black on all the upper parts; the black markings are smallest, and appear radiated under a lens: the anterior end is sub-bifid, extending each side into an angular lobe: tentacula two, sub-clavated and perfoliated; these originate on the upper part some distance from the anterior end, and each is nearly surrounded by a sort of bipartite wing: the vent is on the back, furnished

with five branched appendages that partly surround it on the fore part, and two large bifid peduncles behind.

Length half an inch.

One specimen only of this singular and gaudy animal has occurred; it was taken at low water on the rocks at Milton.

## APHRODITA.

### APHRODITA VIRIDIS.

TAB. IV. Fig. 1.

*Aphrodita cirrhosa.* Gmel. *Syst.* p. 3109?

Body long, greenish, with about thirty-six fasciculi on each side, and covered with eighteen pairs of squamæ, which appear a little speckled by reason of their being somewhat rugose: the fascicles are much divaricated, and between each scale is a fleshy filiform appendage terminated by an extremely fine fibre: tentacula four, setaceous: eyes four, small and black.

Length three fourths of an inch. Rare.

Possibly this is the *cirrosa* of Pallas, as it nearly accords in the number of feet; and probably some of the scales of his were lost, as it is usual for them to be in number about half those of the feet.

Many species of squamous Aphrodites are with difficulty conveyed, even in sea water, to a small distance, without being mutilated, especially with respect to the scales, which are extremely deciduous: this circumstance is the occasion of great difficulty in ascertaining the species already described.

## AMPHITRITE.

### AMPHITRITE VESICULOSA.

#### TAB. V. Fig. 1.

Body with numerous annulations of a pale dull orange colour minutely speckled with yellowish white; a broad indistinct stripe down the back, in the middle of which is a depressed line as far as the ninth joint, where it turns transversely to the left side and is lost; the eight anterior joints are destitute of the dorsal depression, and on this part the branchia and fasciculi are most conspicuous: tentacula two, furnished with about twenty-eight long ciliated fibres each, similar in shape to those of *A. ventilabrum*, but of an olive-green mottled with gray, and partly disposed in bands, when the plumes are extended: these do not form a regular circle when expanded, like *A. ventilabrum*, but appear sub-convoluted, the under part turning inwards; at the point of each ray is a dark purplish vesicle, most conspicuous on the anterior ray of each plume, terminated by a short hyaline appendage: the mouth ringent: lips whitish, furnished with two slender feelers or cirri: behind the plumose tentacula is a scalloped membrane surrounding the anterior end; this, except the lower division, is white.

Length six or seven inches; diameter of the largest part above one fourth of an inch.

This new and beautiful species, like most others of the genus, prepares a tube for its habitation, the internal texture of which is coriaceous like that of *A. ventilabrum*, generally described as *Sabella penicellus*, but the external part is invariably coated with much coarser sand, intermixed with fragments of shells. Length of the tube ten or twelve inches.

The locality of many of the productions of nature is frequently the cause of their remaining so long in obscurity, and not their actual scarcity. This remark is exemplified in the present instance; for in one particular spot in the estuary of Kingsbridge, contiguous to where the *A. ventilabrum* is found in such abundance, as mentioned in a former paper, these are nearly equally plentiful, and, what is remarkable, each keeps its station, the line of demarcation appearing to be the separation of the coarser from the finer sand, and neither intrudes upon the other: this species is the highest, and consequently more frequently uncovered by the water at low tides; the other lies in a small channel that is rarely dry.

These animals have been kept alive more than a month in sea water.

### NEREIS.

#### NEREIS SANGUINEA.

#### TAB. III. Fig. 1.

Body long, slightly depressed beneath, and acuminate towards each end, but much more so at the posterior extremity; the number of joints exceeds two hundred and seventy, about forty of which at the posterior end are of a much paler colour, and appear to be a reproduction; the rest of the body is of a fine bronze resplendent with changeable prismatic tints; the sides furnished with tridentate peduncles, from the middle of which issue a flat fasciculus of hair of a pale colour, and one large black bristle: about the twenty-eighth joint commence on each side branched cirri of a blood-red colour, which afterwards increase considerably in length; these originate from the upper part of each peduncle, and are usually hexafid, but unite above the base; they are not retractile, but are generally carried erect  
and

and spread, giving the animal a beautiful appearance: the upper lip is bilobate, behind which are five short tentacula, the middle one standing in the suture of the lip: between the two outer tentacula on each side is a small black eye: the first joint behind the head is broader than the rest, and destitute of peduncles: the posterior extremity is furnished with two small terminal cirri: the mouth is large and placed beneath, concealing most formidable jaws, or complicated fangs, which were protruded occasionally as the animal became sickly, and very frequently in the agonies of death when a few drops of spirits were added to the sea water: this apparatus consists of three pairs of hooked fangs of a dark colour, one pair smooth, the others toothed, besides a pair of broad plates on the lower part of the mouth, the structure of which will be better understood by the accompanying figure. TAB. III. Fig. 3.

This is the largest species of *Nereis* yet discovered to inhabit the British shores, extending sometimes to fourteen or fifteen inches in length, and large in proportion. It inhabits rocky situations, and is found lurking under the broken fragments; but is rare.

While the animal was in a glass of sea water, the circulation of the colouring secretion through the ramifications of the cirri was a curious object, and appeared to be effected at the will of the animal; but when it became sickly, the circulation was slower, rising up through the branches of the cirri gradually as in capillary tubes, and as soon as it expired all the colour from those parts vanished.

NEREIS MACULOSA.

TAB. III. Fig. 4.

Body linear, with about thirty pairs of fasciculate peduncles complicated with a slender pencil of hairs above the broad fascicles,

fascicles, and in some points of view appearing like a single hair; above this issues a cirrus changeable in shape, but never longer than the peduncle, independent of the fasciculus: tentacula seven, the middle one largest, and placed in the centre of the forehead between the eyes, somewhat erect, and appears to be jointed: eyes four, black, the hindmost pair smallest, and not visible on the upper part; the others are large, and most conspicuous beneath: along the back are seven cordiform, equidistant yellow spots, the ground colour white.

Length about an inch. Rare.

This is somewhat like *Nereis corniculata* of Muller, but the want of the bifid tentacula makes it distinct.

## HOLOTHURIA.

### HOLOTHURIA DIGITATA.

TAB. IV. Fig. 6.

*Holothuria inhærens.* *Mull. Zool. Dan. i. t. 31. f. 1—4?* *Gmel. Syst. p. 3141?*

Body long, cylindric, covered with minute papillæ of a yellowish white colour, marked with small spots of red-orange closely disposed, and in many parts confluent; posterior end tinged with green: tentacula twelve, short, dividing at their tips into four obtuse branches of a pale colour.

Length when extended between three and four inches.

This rare species is capable of great contraction, and probably multiplies by natural divisions, as it separates without violence into an indefinite number of pieces: this is effected by muscular stricture, which forms ligatures and separates portions into globular pieces; sometimes two or three of these ligatures are formed together, and as many separations ensue, provided the exterior

exterior one first falls off, otherwise the part separated appears to continue in that moniliform state. This, however, may be a forced action from confinement in a glass of sea water, and one division at the extremity is the order nature most likely pursues. It must however be admitted that our knowledge with respect to these inhabitants of the deep is extremely limited, since they can only be examined when taken from their natural abode: the form of these creatures is nearly all we may expect to become acquainted with, for their œconomy is concealed from us by that insurmountable barrier which no philosopher can pass.

The faculty this animal possesses of separating into so many parts renders it quite impossible to preserve a perfect specimen.

It must be confessed that Muller is referred to with doubt, as I could not discover any regular series of papillæ in the present subject, which that author describes in his; nor was there any appearance of pinnæ on the sides of the tentacula, as represented by Muller; and yet, if the figure of this is compared with those of that author given of the natural size, a difference is scarcely obvious. With similar doubt Gmelin is quoted, who refers to Forskahl as well as to Muller; and if we may judge from the figure given of *Holothuria inhærens* in the *Naturalist's Miscellany*, vol. viii. tab. 260, (the author of which quotes Gmelin, and like him refers to the *Fistularia reciprocans* of Forskahl,) the *H. digitata* is perfectly distinct. Probably the former author did not consider the species given by Muller to be the same as referred to in Forskahl, as he has not quoted *Zoologia Danica*: indeed there can be no doubt but the *H. inhærens* of *Nat. Misc.* and *Zool. Dan.* are perfectly distinct.

THALASSINA.

Body short, mutable: an aperture at each extremity: the mouth furnished with a greatly extended lip serving the double purpose of collecting nourishment, and of progressive motion.

THALASSINA MUTATORIA.

TAB. V. Fig. 2.

*Lumbricus thalassema.* Gmel. *Syst.* p. 3084.—*Turt.* iv. p. 59.—  
*Pall. Spicil. Zool.* x. p. 8. t. 1 f. 6.

This animal is ovate-oblong in a quiescent state, and rather more than half an inch in length, but sometimes extends to more than an inch, and then changes its form by alternately inflating each end: it is furnished with annulations which become ridged at the posterior end, where it terminates in a point or nipple: it has also longitudinal striæ that decussate the annulations irregularly, giving a squamous appearance: at the anterior end the margin of the aperture extends into a very long amorphous appendage, frequently three or four times the length of the body, at other times contracted very short, but never receding within the mouth: in the former state it is usually flat; in the latter the sides fold together and almost form a tube, becoming much scalloped or wrinkled on the margin; and at the base the sides unite, forming a sort of funnel to the mouth: by this implement not only nourishment is collected, but its only progressive motion is performed: it is in continual action, thrown about in all directions in search of food, and occasionally by fastening it to a distant body the animal is drawn forward, or turned to either side: at the anterior end immediately behind the long appendage are two very minute feelers which are not always protruded.

The posterior half of the body is of a blueish-gray, the other purplish-pink; the appendage saffron, paler at the extremity.

This



This curious animal was kept alive in sea water several days, for examination, and was never observed to take in or eject that element like the *Holothuria* tribe, but at the posterior end is an evident opening for discharge of the *fæces*.

It can scarcely admit of a doubt but that this is the animal figured by Pallas, though so badly represented. By this author we learn that it was originally found on the coast of Cornwall amongst the submarine rocks, and communicated to him by Gærtner under the title of *Thalassema Neptuni*, intending, it is presumed, *Thalassina* as expressive of its nature.

The present subject was taken in a similar situation on the coast of Devon; and as it evidently is not belonging to the genus *Lumbricus*, nor to any other established genus in Helminthology, it has been thought right to give it a distinct place in the system of Nature, and I think it might with propriety immediately precede *Holothuria*.

PLANARIA VITTATA\*.

TAB. V. Fig. 3.

Body ovate, yellow, the margin edged with white, and marked with concentric, broken lines of black; in the middle a broad white longitudinal line, with a central black one: in the front are two auricular appendages, each marked with a black patch on the hinder part: at a small distance behind the auricles, at the commencement of the dorsal white line, are two contiguous patches consisting of numerous minute black spots, appearing perfectly distinct under a lens, and which are probably eyes.

The white part in the middle is somewhat convex, and seems to be what contains the viscera; the rest is extremely thin.

Length when extended an inch and a half; breadth one inch.

This extremely beautiful marine Planaria has a slow and gliding motion, the margins undulating into raised scallops.

\* This seems allied to the *Doris quadrilineata* Linn. Gmel. p. 3104. 6. G. SHAW.

Two were taken by accident amongst *Spongia tubulosa* at the Salt-stone in the estuary of Kingsbridge, in the month of August, and fortunately a drawing was taken the same day, for on the next morning not a vestige remained of them, although placed in a glass of sea water; they were completely decomposed and turned into a milky fluid.

REFERENCES TO THE FIGURES.

- Tab. I. Fig. 1. *Cancer septemdentatus*.  
 2. ——— *biaculeatus*.
- Tab. II. Fig. 1. ——— *spinosus*.  
 2. ——— *Galba*.  
 3. ——— *monoculoides*.  
 4. *Phalangium acaroides*.  
 5. *Monoculus rostratus*.  
 6. *Cancer pedatus*.  
 7. ——— *obtusatus*.
- Tab. III. Fig. 1. *Nereis sanguinea*.  
 2. ————— peduncles magnified.  
 3. ————— fangs magnified.  
 4. ——— *maculosa*, (a.) peduncle magnified.  
 5. *Nycteribia Vespertilionis*, magnified.  
 6. ————— under side.  
 7. ————— leg highly magnified.
- Tab. IV. Fig. 1. *Aphrodita viridis*.  
 2. *Oniscus cæruleatus*.  
 3. *Doris papillosa*.  
 4. ——— *pennigera*.  
 5. ——— *quadricornis*.  
 6. *Holothuria digitata*.
- Tab. V. Fig. 1. *Amphitrite vesiculosa*.  
 2. *Thalassina mutatoria*.  
 3. *Planaria vittata*.